Q2

efficient method for generation of multiple mutations at defined sites," Gene 34:315-323; and Grundström et al. (1985) "Oligonucleotide-directed mutagenesis by microscale 'shot-gun' gene synthesis," Nucl. Acids Res. 13:3305-3316), double-strand break repair (Mandecki (1986) "Oligonucleotide-directed double-strand break repair in plasmids of Escherichia coli: a method for site-specific mutagenesis," Proc. Nat'l Acad. Sci. USA, 83:7177-7181). Additional details on many of the above methods can be found in Methods in Enzymology, Vol. 154, which also describes useful controls for trouble-shooting problems with various mutagenesis methods.

Concluded

IN THE CLAIMS

Please amend the claims to as follows, without prejudice to subsequent renewal. **Per the requirements of 37 C.F.R. § 1.121, the following claims are to be substituted for the corresponding previously pending claims of the same number(s). A marked up version showing the changes to the claims, is attached herewith. For the Examiner's convenience, a complete claim set of the currently pending claims is also submitted herewith.**

Q3

4. (amended) The nucleic acid of claim 3, said polypeptide having antiproliferative activity in a human Daudi cell line-based cell proliferation assay or antiviral activity in a human WISH cell/EMCV-based assay.

Q4

Rule C10

54. (amended) The polypeptide of claim 34, 37, 41 or 51, further comprising a secretion/localization sequence.

55. (amended) The polypeptide of claim 34, 37, 41 or 51, further comprising a polypeptide purification subsequence.

Q5

Rule C11

57. (amended) The polypeptide of claim 34, 37, 41 or 51, further comprising a Met at the N-terminus.

58. (amended) The polypeptide of claim 34, 37, 41 or 51, comprising a modified amino acid.

a6 and C12

60. (amended) A composition comprising the polypeptide of claim 34, 37, 41 or 51 and an excipient.

a7

64. (amended) An antibody or antisera produced by administering the polypeptide of claim 34, 37, 41 or 51 to a mammal, which antibody or antisera specifically binds at least one antigen, said at least one antigen comprising a polypeptide comprising one or more of the amino acid sequences of SEQ ID NO:36 to SEQ ID NO:70 and SEQ ID NO:79 to SEQ ID NO:85, or a fragment thereof, which antibody or antisera does not specifically bind to an IFN-α polypeptide encoded by a nucleic acid corresponding to one or more of GenBank accession number: J00210 (alpha-D), J00207 (Alpha-A), X02958 (Alpha-6), X02956 (Alpha-5), V00533 (alpha-H), V00542 (alpha-14), V00545 (IFN-1B), X03125 (alpha-8), X02957 (alpha-16), V00540 (alpha-21), X02955 (alpha-4b), V00532 (alpha-C), X02960 (alpha-7), X02961 (alpha-10 pseudogene), R0067 (Gx-1), I01614, I01787, I07821, M12350 (alpha-F), M38289, V00549 (alpha-2a), and I08313 (alpha-Con1).

a8

68. (amended) A method of inhibiting growth of population of tumor cells, the method comprising:

contacting the population of tumor cells with an effective amount of a polypeptide of claim 34, 37, 41 or 51 sufficient to inhibit growth of tumor cells in said population of tumor cells, thereby inhibiting growth of tumor cells in said population of cells.

a9

71. (amended) A method of inhibiting the replication of a virus within at least one cell infected by the virus, the method comprising:

contacting said at least one infected cell with an effective amount of a polypeptide of claim 34, 37, 41 or 51 sufficient to inhibit viral replication in said at least one infected cell, thereby inhibiting replication of the virus in said at least one infected cells.

a10

77. (amended) A method of treating an autoimmune disorder in a patient, the method comprising: administering to the patient an effective amount of the polypeptide of claim 34, 37, 41 or 51.

a11

79. (amended) In a method of treating a disorder treatable by administration of interferon-alpha to a subject, an improved method comprising: administering to the subject an effective amount of the polypeptide of claim 34, 37, 41 or 51.

a12
Rule C14

120. (amended) The polypeptide of claim 34, 37, 41 or 51, said polypeptide having an increased growth inhibition activity against a population of cancer cells relative to the inhibition activity of human interferon-alpha 2a against the population of cancer cells.

a13
Rule C15

124. (new) The polypeptide of claim 31, further comprising a secretion/localization sequence.

125. (new) The polypeptide of claim 31, further comprising a polypeptide purification subsequence.

126. (new) The polypeptide of claim 125, wherein the sequence that facilitates purification is selected from the group consisting of: an epitope tag, a FLAG tag, a polyhistidine tag, and a GST fusion.

Rule C16

127. (new) The polypeptide of claim 31, further comprising a Met at the N-terminus.

128. (new) The polypeptide of claim 31, comprising a modified amino acid.

129. (new) The polypeptide of claim 127, wherein the modified amino acid is selected from the group consisting of: a glycosylated amino acid, a PEGylated amino acid, a farnesylated amino acid, an acetylated amino acid, and a biotinylated amino acid.

Rule C17

130. (new) A composition comprising the polypeptide of claim 31, and an excipient.

131. (new) The composition of claim 129, wherein the excipient is a pharmaceutically acceptable excipient.

Q13
Rule CB

132. (new) A composition comprising the polypeptide of claim 128 in a pharmaceutically acceptable excipient.

133. (new) An antibody or antisera produced by administering the polypeptide of claim 31, to a mammal, which antibody or antisera specifically binds at least one antigen, said at least one antigen comprising a polypeptide comprising one or more of the amino acid sequences of SEQ ID NO:36 to SEQ ID NO:70 and SEQ ID NO:79 to SEQ ID NO:85, or a fragment thereof, which antibody or antisera does not specifically bind to an IFN-α polypeptide encoded by a nucleic acid corresponding to one or more of GenBank accession number: J00210 (alpha-D), J00207 (Alpha-A), X02958 (Alpha-6), X02956 (Alpha-5), V00533 (alpha-H), V00542 (alpha-14), V00545 (IFN-1B), X03125 (alpha-8), X02957 (alpha-16), V00540 (alpha-21), X02955 (alpha-4b), V00532 (alpha-C), X02960 (alpha-7), X02961 (alpha-10 pseudogene), R0067 (Gx-1), I01614, I01787, I07821, M12350 (alpha-F), M38289, V00549 (alpha-2a), and I08313 (alpha-Con1).

134. (new) A method of inhibiting growth of population of tumor cells, the method comprising:

contacting the population of tumor cells with an effective amount of a polypeptide of claim 31 sufficient to inhibit growth of tumor cells in said population of tumor cells, thereby inhibiting growth of tumor cells in said population of cells.

135. (new) The method of claim 134, wherein the tumor cells are selected from the group consisting of: human carcinoma cells, human leukemia cells, human T-lymphoma cells, and human melanoma cells.

136. (new) The method of claim 134, wherein the tumor cells are in culture.

137. (new) A method of inhibiting the replication of a virus within at least one cell infected by the virus, the method comprising:

contacting said at least one infected cell with an effective amount of a polypeptide of claim 31 sufficient to inhibit viral replication in said at least one infected cell, thereby inhibiting replication of the virus in said at least one infected cells.

138. (new) The method of claim 137, wherein the virus is an RNA virus.

139. (new) The method of claim 138, wherein the virus is a human immunodeficiency virus or a hepatitis C virus.

140. (new) The method of claim 137, wherein the virus is a DNA virus.

141. (new) The method of claim 139, wherein the virus is a hepatitis B virus.

142. (new) The method of claim 137, wherein the cells are cultured.

143. (new) A method of treating an autoimmune disorder in a patient, the method comprising: administering to the patient an effective amount of the polypeptide of claim 31.

144. (new) The method of claim 143, wherein the autoimmune disorder is selected from the group consisting of multiple sclerosis, rheumatoid arthritis, lupus erythematosus, and type I diabetes.

145. (new) In a method of treating a disorder treatable by administration of interferon-alpha to a subject, an improved method comprising: administering to the subject an effective amount of the polypeptide of claim 31.

146. (new) The method claim 145, wherein the disorder treatable by administration of interferon-alpha is selected from the group consisting of: sclerosis, rheumatoid arthritis, lupus erythematosus, and type I diabetes.

147. (new) The polypeptide of any of claims claim 31, said polypeptide having an increased growth inhibition activity against a population of cancer cells relative to the inhibition activity of human interferon-alpha 2a against the population of cancer cells.